Making Indiana a cleaner, healthier place to live . . .

OFFICE OF POLLUTION PREVENTION AND TECHNICAL ASSISTANCE

IDEM

Source Reduction and Recycling Annual Report

February 2, 2004

2003

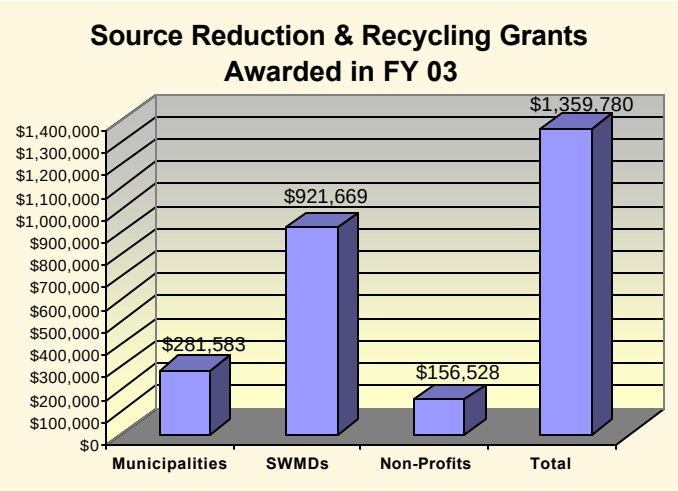
Fiscal Year 2003:
July 1, 2002 through June 30, 2003

Introduction

The Office of Pollution Prevention and Technical Assistance (OPPTA) is charged by statute to provide technical assistance for source reduction and recycling projects and to administer the Indiana Recycling Grant Program established under IC 13-20-22-2 in 1989. OPPTA works with local governments to achieve the legislative goal of 50 percent waste reduction through financial support and by providing public education and technical assistance through site visits, recognition programs, brochures, fact sheets and workshops. This report provides a summary of the source reduction, reuse, recycling and composting activities and accomplishments of OPPTA's Source Reduction and Recycling Branch for fiscal year (FY) 2003.

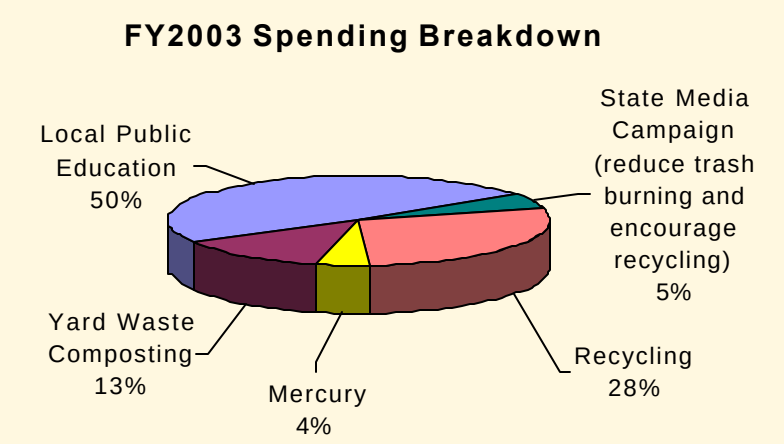
Financial Assistance

OPPTA provides grants to solid waste management districts, cities and towns, counties, schools, and nonprofit organizations for startup costs, equipment purchases and education programs associated with establishing or expanding source reduction, reuse, recycling, and composting programs. Grant funds can also be used to support household hazardous waste programs. OPPTA produces a household hazardous waste annual report which is available on OPPTA's Web site at www.IN.gov/idem/oppta/hhw/grants/reports/.



Note: Dollar amounts include funding for two Mercury programs to SWMDs.

OPPTA awarded more than $1.3 million in recycling grants in FY 2003. The distribution of funding by type of recipient is shown above, and the regional distribution of funding is shown in Attachment A.



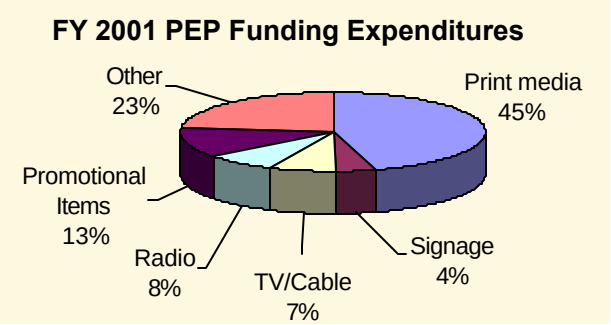
Projects funded through the Indiana Recycling Grant Program include activities such as education and promotion of recycling, waste reduction, recycling and organics management (including yard waste management and composting). This graph (left) shows the distribution of funding awarded by types of programs.

Grants Awarded in FY 2003

The Indiana Department of Environmental Management has developed two distinct programs within the Indiana Recycling Grant Program. Funding for the grant programs come from the state's Solid Waste Management Fund. Each year IDEM allocates a portion of the funds, specifically to solid waste management districts for education through Public Education and Promotion (PEP) grants. IDEM allocates the balance of funds to competitive recycling grants which are divided into the traditional, model, school and regional funding categories.

Public Education and Promotion Grants

Program administrators consistently identify education and promotion as a priority for recycling. In Indiana, SWMDs are responsible for implementing promotional activities emphasizing source reduction, reuse, recycling, buy recycled, composting, and HHW activities. IDEM supports the district's efforts through the PEP grant program. The PEP grant funds can be specifically used for the following categories: print media (newspaper ads, brochures, etc.), signage, TV/cable, radio, educational/promotional items, mercury education, and other (conferences and training, etc.). The graph to the right illustrates how SWMDs utilized PEP dollars in FY 2001, which is the most current data available.



In FY 2003, OPPTA awarded 42 grants totaling $661,603 solely to SWMDs to provide public education about the benefits of recycling and promote their local programs (see table below). Not all solid waste management districts received PEP funding in FY 2003. SWMDs with non-allocated cash surpluses that exceeded the limit IDEM established as a result of House Enrolled Act 1339 were not eligible for grants in this round. Additionally, some eligible solid waste management districts chose not to apply for PEP funds. A per capita funding formula was used to determine the amount of PEP grant funding each SWMD was eligible to receive.

FY 2003 PEP Grant Recipients

Allen County SWMD	$25,000	Marshall County SWMD	$9,440
Bartholomew County SWMD	$15,086	Martin County SWMD	$9,285
Brown County SWMD	$5,000	Miami County SWMD	$11,728
Clark County SWMD	$17,465	Monroe County SWMD	$19,753
Clay-Owen-Vigo SWMD	$29,948	Perry County SWMD	$8,590
Crawford County SWMD	$9,321	Pike County SWMD	$9,520
Dearborn County SWMD	$12,680	Porter County SWMD	$22,246
Decatur County SWMD	$10,000	Posey County SWMD	$8,150
Dubois County SWMD	$12,069	Randolph County SWMD	$10,903
Floyd County SWMD	$10,000	Shelby County SWMD	$12,427
Fountain County SWMD	$7,000	Southeastern Indiana SWMD	$43,130
Greene County SWMD	$11,450	Spencer County SWMD	$10,237
Hamilton County SWMD	$25,660	St. Joseph County SWMD	$33,528
Hancock County SWMD	$13,562	Starke County SWMD	$9,741
Howard County SWMD	$16,372	Sullivan County SWMD	$10,366
Jackson County SWMD	$3,500	Three Rivers SWMD	$24,074

Johnson County SWMD	$19,245		Tipton County SWMD	$10,000
Knox County SWMD	$9,128		Warren County SWMD	$6,000
Kosciusko County SWMD	$4,600		West Central Indiana SWMD	$41,601
Lake County SWMD	$40,750		Whitley County SWMD	$11,217
Lawrence County SWMD	$12,663		Wildcat Creek SWMD	$29,168

FY 2003 Traditional, Model, School and Regional Projects Funding Categories

In FY 2003, OPPTA offered two grant rounds for the traditional, school, model and regional projects categories described below. Submittal deadlines were January 2002 and May 2002. OPPTA awarded 34 grants totaling $698,177 for projects in these categories. Traditional, model, school and regional grants awarded in FY 2003 are listed below, along with a description of each category.

Traditional Projects: This grant category provides support for local implementation of recycling programs. Funding is available for startup expenses of recycling, composting, and source reduction programs as well as infrastructure development. Examples include curbside recycling, drop-off recycling, recycling processing, organics management programs such as yard waste collection and composting, and pay-as-you-throw with recycling. Eligible expenses include the purchase of recycling equipment such as balers and compactors, organics management equipment including chippers and leaf vacuums, and educational materials to help residents participate in programs. Traditional grants are intended to create sustainable projects, with no state funding for ongoing program costs.

Model Projects: This grant category provides funding for innovative solid waste reduction solutions that may serve as "models" for implementation in other parts of the state. Grant funds are available for pilot and experimental project implementation. Examples include glass grinding equipment for use in asphalt, public-private partnerships to address problem waste streams, and innovative educational projects. Eligible expenses include equipment purchases, public education and promotion expenses related to the project, and purchase of innovative recycled-content materials for trial use. Model grants should address significant solid waste management needs that have not been met within an applicant’s region.

School Projects: This grant category provides funding for preschool, K-12 and college/university level institutions to startup or expand recycling, source reduction, reuse, buy-recycled and composting programs. Examples include starting a school recycling program, worm composting programs, and source reduction educational projects. Eligible expenses include the purchase of curricula, equipment and educational materials. Grant applicants must demonstrate strong commitment and support at the administrative level, and have a solid network of students, teachers and staff members who will be able to keep the program running after implementation.

Regional Projects: This grant category supports cooperative ventures among multiple partners. Grant funds are available for team-oriented solid waste reduction efforts that realize the value of economies of scale, peer networking, leveraging of funds, and improved communications. Examples include the purchase of limited-use equipment to be shared by entities, cooperative collection and marketing of materials, and regional or statewide education projects. Eligible expenses include equipment purchases,

development of educational materials, and the purchase of advertising space/time. Regional projects must address at least 10 counties or 700,000 citizens.

FY 2003 Project Grants			
Grant Category	**Recipient**	**Project Description**	**Grant Funds Awarded**
Traditional	Bartholomew County SWMD	To fund the purchase of recycling collection containers.	$5,000
Traditional	Benton County Recycling Center	To fund the purchase of a glass grinder with trommel.	$9,100
Traditional	Bloomington, City of	To fund the purchase of a recycling truck.	$50,000
Traditional	Brazil, City of	To fund the purchase of a leaf vacuum.	$14,000
Traditional	Chandler Elementary School	To fund a vermicomposting project.	$4,550
Traditional	Clark County SWMD	To fund the purchase of a skid steer loader and a truck.	$21,188
Traditional	Dearborn County SWMD	To fund the purchase of a truck and mobile recycling trailer.	$20,134
Traditional	Elkhart County Highway Dept.	To fund the purchase of a brush chipper.	$11,450
Traditional	Floyd County SWMD	To fund the purchase of a pickup truck and two recycling trailers.	$14,250
Traditional	Goodwill Industries of Michiana	To fund the purchase of a forklift, box truck, pallet jacks and containers.	$50,000
Traditional	Grant County Highway Department	To fund the purchase of a baler, glass crusher, recycle bins and trailer.	$47,460
Traditional	Griffith, Town of	To fund the purchase of a leaf vacuum.	$16,000
Traditional	Hamilton County Senior Services	To fund the purchase of a baler and forklift.	$28,678
Traditional	Hammond, City of	To fund the purchase of a truck scale.	$15,245
Traditional	Hartford City, City of	To fund the purchase of a leaf vacuum and pickup truck.	$26,675
Traditional	Howard County SWMD	To fund the purchase of a loader and trailer.	$16,398
Traditional	Monroe County SWMD	To fund the purchase of a cart tipper.	$2,643
Traditional	Monroe County SWMD	To fund the purchase of a compactor and boxes.	$9,488
Traditional	New Harmony, Town of	To fund the purchase of a chipper.	$11,250
Traditional	North Webster, Town of	To fund the purchase of a leaf vacuum and wood chipper.	$11,750
Traditional	Osceola, Town of	To fund the purchase of a chipper.	$4,894

Traditional	Rising Sun, City of	To fund the purchase of a leaf vacuum.	$12,475
Traditional	Roann, Town of	To fund the purchase of a brush chipper.	$10,381
Traditional	Saint Joseph's College	To fund the purchase of a wood chipper and truck.	$33,300
Traditional	Southeastern Indiana SWMD	To fund the purchase of two recycling trucks.	$40,545
Traditional	Tell City Electric Department	To fund the purchase of a wood chipper.	$13,000
Traditional	Wabash County Highway Department	To fund the purchase of a wood chipper.	$11,500
Traditional	Washington, City of	To fund the purchase of a baler and trailer.	$8,303
Traditional	White County Recycling Center	To fund the purchase of a recycling trailer.	$2,500
Model	Plainfield, Town of	To fund an apartment recycling program.	$5,600
Regional	Allen County SWMD	Serve as a mercury hub to collect, store and recycle mercury and mercury-containing devices and debris.	$32,264
Regional	Greene County SWMD	To conduct an illegal burning public education campaign.	$69,800
Regional	Indiana Recycling Coalition	To develop an E-Scrap Action Program to address electronics stewardship and recycling.	$40,000
Regional	Monroe County SWMD	Serve as a mercury hub to collect, store and recycle mercury and mercury-containing devices and debris.	$28,356

Recycling Grant Programs Showcase

The following is a sampling of some successful projects funded by the FY 2003 Recycling Grant Program.

Food Waste Recycling

Purdue University's food composting project is of significant importance in FY 2003. The University's Housing and Food Services serves over 18,000 meals per day to 9,500 students on meal plans, for a total of 3.2 million meals per year. Previously, the pulped food waste at Purdue was placed in dumpsters, hauled to the local transfer station, and then landfilled. The tipping fee at the local transfer station was $36.90 per ton. During a 32 week period, 126 tons of food waste was composted instead of landfilled, saving Purdue $4,650 in avoided tipping fees. For details on the food-composting project, refer to Attachment B.

Glass Reuse and Recycling

IDEM continues to support local glass recycling initiatives. Indiana State University's pilot glass recycling program is beginning to find success in other regions of the state. A program in the Vincennes area will begin soon and Benton County's glass recycling program has

demostrated the possibility of establishing a solution for glass marketing in rural northwest Indiana. For details, refer to Attachment C.

Waste Tire Recycling

In spring 2001, IDEM offered its first grant program to specifically address waste tire recycling and reuse. The agency awarded grants to five Indiana schools for an innovative turf treatment for six soccer and football fields. Project contractors applied crumb rubber made from recycled tires to the athletic fields during summer 2003. This project is expected to improve the soil structure and overall condition of the fields, and is especially beneficial for fields that receive heavy use. Ford Motor Company partnered with Beech Grove High School, Ben Davis High School, Decatur Central High School, Lake Central High School, and Taylor University to complete these projects, and provided matching funds for the grants.

IDEM will offer a second round of grants for waste tire recycling in FY 2004, focused on the use of recycled tire materials in civil engineering applications. For additional information, refer to Attachment D.

Technical Assistance

Regional Staffing

OPPTA's Source Reduction and Recycling Branch has regional representatives who provide technical assistance and manage the grants program. Each regional representative is also responsible for management of grants within his or her assigned area. A list of the regional representatives and their contact information is available on OPPTA's Web site at www.IN.gov/idem/oppta/recycling/grants or can be obtained by calling 800-988-7901.

Compliance and Technical Assistance

Source Reduction and Recycling Branch staff members actively provide technical assistance to their grant customers as well as Indiana citizens. During FY 2003, staff performed 161 recycling site visits and responded to numerous recycling and household hazardous waste grant assistance telephone and e-mail inquiries. Additionally, staff responded to more than 800 inquiries or requests for information on topics such as household hazardous waste, mercury, computers and appliance recycling, and where to recycle household materials. Some calls require extensive research to provide the caller with high-quality assistance.

Organics Recycling Technical Assistance

Yard waste debris such as grass clippings, leaves and tree prunings are estimated to make up 18-percent by weight and 10-percent by volume of the municipal waste stream. Recycling can be an important component of a successful program to reach Indiana's 50-percent waste reduction goal. OPPTA staff developed an organic recycling Web site as a resource for IDEM staff and the public. This Web site provides assistance to users addressing issues associated with yard waste, sludge, open burning, organics recycling and waste management options. For additional information visit OPPTAs Web site at www.IN.gov/idem/oppta/recycling/organics/.

Outreach

America Recycles Day

November 15 is designated as America Recycles Day (ARD). During FY 2003, more than 38 events were held throughout Indiana to remind people to renew their commitment to waste reduction, recycling and buying recycled products. People who filled out pledge cards renewing their commitment to recycling were eligible for statewide and national America Recycles Day prize drawings. OPPTA collected a total of 2,141 pledge cards from those events.

In central Indiana, the ARD planning committee organized an America Recycles Day celebration at the Southport Home Depot in Indianapolis. Activities for the FY 2003 celebration included:

- Radio station WRZX broadcast live from the celebration.
- IDEM and SWMD employees provided a composting workshop.
- Two customers were selected at random to go on a scavenger hunt for a list of products made with recycled content. Prizes were Home Depot gift certificates.
- The Goldsmith Group accepted old electronics equipment for recycling. Items accepted included VCRs, computer hard drives and monitors, and televisions.
- "Shelf talkers" were displayed throughout the store to let patrons know which products were made with recycled content.
- America Recycles Day pledge cards were distributed and a prize drawing was held.

Indiana State Fair

Source Reduction & Recycling Branch members staffed the IDEM display in the DNR building during the 2002 State Fair, held August 7, 2002 through August 18, 2002. Additionally, many OPPTA representatives helped with the plastic bottle recycling program at the Indiana State Fair. Volunteers helped set up and tear down the recycling containers and assisted in the collection of plastic bottles. The plastic bottles were sent to a local recycling company for processing.

Recycling Opportunities Database

In order to more efficiently inform the public on statewide recycling opportunities, OPPTA has created and maintains the Recycling Opportunities Database. This searchable database provides fingertip access to information by county on recycling drop-offs and curbside programs. Any resident of Indiana with access to the internet can search their county for solid waste diversion opportunities near their home or workplace. There are 79 curbside recycling programs in the state and more than 571 recycling drop-offs. Ninety-five percent of Indiana residents have recycling services available (through a curbside or drop-off recycling program) within eight miles of their homes. The Recycling Opportunities Database can be found on IDEM's Web site at www.IN.gov/idem/oppta/recycling/search/.

Recycling Grants Listserv

In order to better serve customers, OPPTA developed the OPPTA Grants Forum listserv. This listserv provides an open discussion forum regarding OPPTA's grant programs and functions as a platform for IDEM to seek advice and comments regarding the grant programs. The listserv provides information on IDEM's grant policies and procedures and also functions as a group discussion platform for concerns regarding source reduction, reuse, recycling and household hazardous waste collection issues in Indiana. To join the listserv email your request to recyclinggrants@dem.state.in.us.

Support of Solid Waste Management Districts

The Source Reduction & Recycling Branch coordinates efforts and collaborates with solid waste management districts on a variety of projects. The branch maintains a Web site and e-mail links and a current SWMD contact list so it can direct the public to those individuals at the local level. Additionally, OPPTA organizes and hosts quarterly focus group meetings. During these meetings staff discuss policy issues and concerns with grant eligible entities (SWMDs, municipal representatives, schools and nonprofit organizations).

To keep current on source reduction and recycling information visit OPPTA's Web site at www.IN.gov/idem/oppta/recycling/.

Illegal Burning Media Campaign

Twenty-five solid waste management districts throughout the state are participating in a two-year regional grant, which OPPTA awarded in December 2002, for a campaign against illegal burning, encouraging proper disposal and recycling. The project includes direct education to local officials regarding the dangers of illegal burning and the importance of enforcement, and a media campaign to educate the public about the health and environmental impacts of illegal burning. Grant participants are currently working with their local officials. The media campaign is scheduled to kick off in spring 2004. More information about illegal burning is available from Greene County SWMD's Web site at www.threegreenarrows.org/illegal/burning.htm.

Governor's Awards for Environmental Excellence

IDEM seeks to recognize businesses, governmental units, schools and other organizations that proactively engage in activities that enable them to reduce their environmental impacts. In the past, governor's awards were awarded separately for pollution prevention and recycling. In FY 2002, OPPTA combined these two award programs and created six new award categories to establish the Governor's Awards for Environmental Excellence. These categories include energy/renewable resources, greening the government, land use, outreach or education, pollution prevention/source reduction, and recycling/reuse. IDEM announced the recipients of Governor's Awards for Environmental Excellence on September 27, 2002 at the Tenth Annual Governor's Conference on the Environment. By publicizing these successful projects, IDEM hopes that others throughout the state will emulate them to improve the quality of the environment.

The award winners in the recycling/reuse category and their projects are described below. For a complete listing of the award winners and more information about the awards program, visit IDEM's Web site at www.IN.gov/idem/oppta/govawards/.

Branchville Correctional Facility

Tell City, Perry County
Contact: Richard T. Newton
Phone: (812) 843-4349
Challenged by the Indiana Department of Correction's Division of Resource Recovery with reducing the amount of refuse being sent to landfills, the management of the Branchville Correctional Facility began an experimental vermicomposting program in 1998. This program increased the number of composting bins from two to 105 bins in order to meet the recycling needs of the 980-offender low-to-medium security correctional facility. Vermicomposting has allowed the facility to annually recycle an average of 41,000 pounds of cardboard and 22,000 pounds of food waste. Branchville has reduced its total output of trash to landfills by up to 50 percent. Its program is a working model for other Indiana correctional

facilities. For more information on this program, refer to Attachment E and IDEM's Web site at: www.IN.gov/idem/oppta/recycling/organics/programs/branchvillevermiculture.pdf.

Eli Lilly and Company/Purdue University
Lafayette, Tippecanoe County
Contact: James J. King
Phone: (765) 477-4266
Eli Lilly and Company and Purdue University created a synthetic soil called "Soilermaker" and an agricultural liming substitute by combining fermentation by-products from the Lilly Tippecanoe Laboratories facility with ash from the fluidized bed reactor at the Purdue University Wade Utility Plant. The result was a very effective soil substitute and liming agent that the Indiana Department of Natural Resources has used to aid in the reclamation of more than 250 acres of acid producing strip mined lands at the Chinook site in Clay County. The Chinook project collaboration between Purdue University, Eli Lilly and the Indiana Department of Natural Resources Division of Reclamation successfully converted the once-barren site to a site that now supports a thick, diverse vegetative cover. This is just one example of how academia, industry and regulators can work together as a team to solve critical environmental issues by utilizing waste by-products. For more information on this project, refer to Attachment F.

Target Stores of Indiana
Indianapolis, Marion County
Contact: Jill Luckett
Phone: (317) 248-5450
In 1991, Target was at the cutting edge of the environmental movement in retailing by having an in-house team assess and amend how the company did business. Target has since implemented an effective national program of waste reduction, with a future goal of zero waste. Target is the first major retailer to virtually eliminate excess packaging on clothing lines, and it is working with other vendors to minimize packaging. The company performs a yearly self-assessment of its environmental operations and publishes the results in an annual report, and even offers products made from recycled content. As a local example, the Indianapolis Distribution Center has demonstrated annual recycling of 6,260 tons of cardboard.

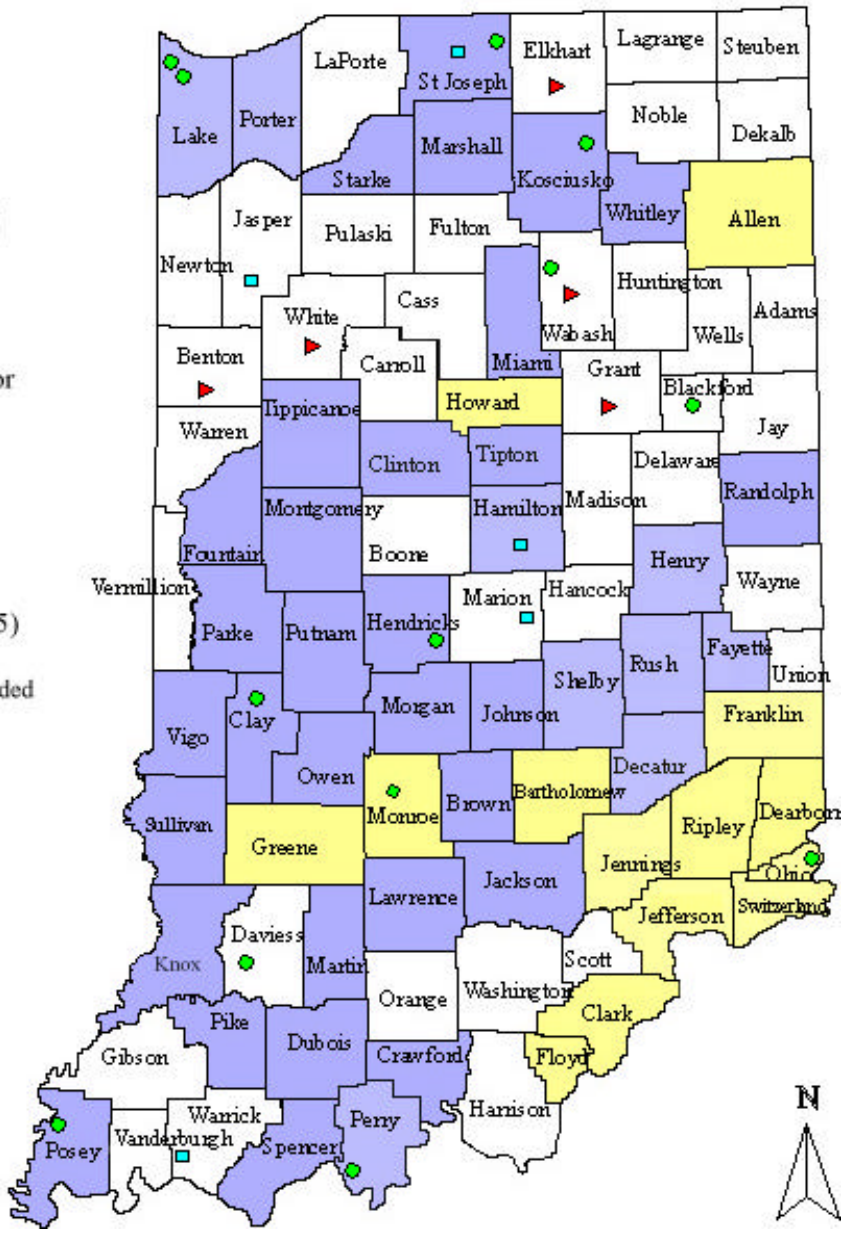
Crane Army Ammunition Activity
Crane, Martin County
Contact: Doug Johnson
Phone: (812) 854-1481
Crane Army Ammunition Activity has implemented several projects to reduce pollution from demilitarization operations. Recently, CAAA initiated two projects that resulted in the recycling of 886,904 pounds of material with cost savings of more than $655,000. In the first project, CAAA reused red phosphorus marine location markers to manufacture a different type of marker. In the second project, CAAA recovered sodium nitrate from an item that had normally been disposed of thermally.

Source Reduction & Recycling Grants Awarded in Fiscal Year 2003

Grants Awarded (76 total)

- Districts awarded PEP grants (42)
- Districts awarded PEP & traditional or model grant (9)
- City/Town awarded grant (13)
- County awarded traditional grant (5)
- Non-profit or school awarded grant (5)

Note: There were four regional grants awarded during FY 03 that are not shown.



Purdue University Food Composting Project

The operation begins in the university cafeterias where the food waste is processed with a food pulper and centrifuge. The material falls into a bin and is ready for collection. The material is then wheeled to the dock where the food waste mixing truck is waiting.

The mixing truck is pre-loaded with mature compost that absorbs unpleasant odors from the food materials. The food waste is loaded into the truck with an attachment at the rear of the truck. Materials fall into the truck bed where mixing begins. After the truck completes its route to all of campus cafeterias it returns to the university's compost facility. Typically there are two trips per day to collect all of the campus food waste.

The truck's mixing apparatus runs the length of the truck bed. The food material and compost mixture is taken to the compost site on the southwest end of campus. The truck has a chute that folds down from the truck bed. Hydraulic apertures force the mixture from the truck. The truck slowly rolls while the material is emptied into windrows.

The resulting windrows are allowed to mature into a rich compost material. This material is used as a soil amendment on revegetation projects at Purdue University's campus.

Contact: Dr. Jody K. Tishmack, Purdue University
Phone: (765) 496-3718

Benton County Recycling
Glass Grinding Project

The good news about glass grinding is spreading. Benton County Recycling's project provides a good example of the advantages of glass recycling in Indiana. The Benton County program managed all of the glass collected in the county, and it developed a built-in demand for the material within county government. The ground glass proves to be a high-quality substitute for sand products used by the county highway department. A grant from IDEM enabled Benton County to purchase an aggregate grinder and begin the glass recycling project. This project has already surpassed Benton County's expectations.

Collected glass from the Benton County Recycling Program is placed into a hopper/ conveyor that delivers the material to the grinder.

After the glass travels up the conveyor, it is dropped down into the grinder at the top and travels through a series of hammers and screens. The ground glass is collected in the bin under the grinder. Then a devise at the top of the grinder exhausts glass dust from the building.

Screeners in the grinder segregate labels and other contaminates from the ground glass. The entire process happens in a matter of minutes. The grinder is capable of grinding up to 1,500 pounds of glass an hour. The resulting material has the consistency of fine sand. The crushed glass can be used for landscaping, as an abrasive on icy roads or as a fill material in construction projects.

The county processed approximately 40 tons to 50 tons of glass in 2003, saving approximately $5,000 in the storage and transporting of glass alone. Additional cost benefits were achieved by using the product for backfill, roads and landscaping projects. According to Recycling Coordinator Jack Weber and Highway Supervisor Tom Collins, the total cost benefit per year could reach $10,000. For a small county such as Benton County with a population of less than 10,000, this is a significant cost saving.

Benton County could increase the amount of glass processed if it partnered with surrounding counties to recycle their glass for reuse. White County Recycling, Warren County and Jasper County have already expressed interest and called with questions about the program. These partnerships could decrease the cost of glass recycling for all counties involved and double or triple the amount of glass recycled through the program.

Contact: Jack Webber
Benton County Recycling
Phone: (765) 884-2028

Indiana's Recycled Tire Project

An innovative athletic field improvement project has been completed on five Indiana school athletic fields in fiscal year 2003. Crumb rubber made from waste tires is applied to the field with specialized equipment; the complete treatment is accomplished through three to five applications. This beneficial reuse project creates a cushion between the grass and soil, protects the crown of the grass, reduces turf wear, lessens soil compaction, improves traction in all weather conditions, enhances moisture absorption and retention, reduces the amount of watering required, strengthens the root structure, and provides a cushioned surface for the student athlete.

Recycled crumb rubber is applied in three applications on one field at 45,000 pounds per application. Each application is closely monitored. The operators use markers to ensure a uniform layer of material over the entire field. Two vehicles are used to complete the application on an entire soccer field in two to three hours.

The application equipment disperses the crumb rubber at a high velocity, which forces it down into the turf. This results in an eighth inch to a quarter inch layer of crumb rubber covering the entire site providing the protection that the plants need to endure the stress of a sport season.

As the waste tire recycling program expands, Indiana waste tires will be recycled and utilized in all types of areas. Recycled crumb rubber use is growing in number of applications such as asphalt, playground materials, livestock flooring and artificial turf. Protecting natural grass athletic fields is just one demonstration of how waste tires can be recycled in Indiana.

Contact: C. Steven Poe
Indiana Department of Environmental Management
Phone: (800) 988-7901

The Branchville Correctional Facility
Vermiculture Program

The Branchville Correctional Facility is located in Perry County on the southern border of Indiana on 114 rolling acres in the heart of the Hoosier National Forest, BCF is home to more than 900 offenders. The facility has developed an innovative system for disposing of its cafeteria wastes. In 1997, BCF began experimenting with vermicomposting. This process involves developing a worm-friendly environment in which to digest food wastes. This process involves housing worms in rectangular boxes that measure four feet long by two feet wide by one foot high. Worm boxes at the Branchville site are home to more than 500 pounds of red-worms.

The bedding recipe for the worm box is:
50 lbs. moist, shredded cardboard;
3 lbs. Canadian Peat Moss;
1 lb. regular dirt;
1/2 lb. ground egg shells; and
1/2 lb. coffee grounds.

The vermicomposting process involves grinding up worm-friendly food scraps from the kitchen. The food must be sorted and checked to ensure that it is “worm friendly.” The food also must be washed to eliminate oil, grease, salad dressing, etc. Then the food must be thoroughly ground up. The smaller the food particles, the quicker they will be eaten by the worms.

Each box of worms receives seven pounds of food per feeding and is fed every six days. The food is placed in a row that runs the length of the box and buried one-half inch to one inch below the top of the bedding. A half pound of coffee grounds and eggs shells are sprinkled on top of the bedding. Beds must be kept moist but not saturated.

After the feeding cycle, the worms and resulting castings are separated. The bedding is separated into three piles. Using bright lights, the worms are driven to the bottom of the piles. The worms are then separated from the bedding. A complete cycle will produce approximately three additional pounds of worms. Bedding and castings are allowed to air dry for 24 hours for easier separation. Bedding and castings are placed in a harvester for separation. The final product is organic worm castings (manure) for use as a fertilizer which is an excellent organic nutrient for plants, gardens, etc. One complete vermicomposting cycle takes approximately three months. In 1999, the BCF vermicomposting program consumed 21,000 pounds of cardboard and 48,000 pounds of food waste.

Contact: Richard T. Newton
Branchville Correctional Facility
Phone: (812) 843-4349

Governor's Award to Eli Lilly and Company and Purdue University in cooperation with DNR's Division of Reclamation

Eli Lilly and Company and Purdue University created a synthetic soil called "Soilermaker" and an agricultural liming substitute by combining fermentation by-products from the Lilly Tippecanoe Laboratories facility with ash from the fluidized bed reactor at the Purdue University Wade Utility Plant. The result was a very effective soil substitute and liming agent that has been used to aid in the reclamation of over 250 acres of acid mined area.

An aerial photo of the site shows the scale of the project, which covers several hundred acres in Clay County. It also shows the success of the revegetation efforts (green area in front of pen). This project creates disposal diversion of the coal fly-ash and sludge and also a valuable soil amendment that can be used in revegetation efforts.

The photo at right is an example of the powdery characteristics of mine spoil that is being addressed by this project. Slurry material creates many environmental problems. Dark color attracts heat that kills plant life, and the slurry is low in organic material and is not conducive to plant growth. The material also is extremely prone to drought. Sever erosion problems occur, and slurry materials enter waterways and pollute them.

This photo shows the success of the project. Plants from the original revegetation efforts are now regenerating themselves due to the favorable conditions created from the soil amendments.

Here, DNR & Eli Lilly representatives view the benefits of vegetative cover. Tom Thomas from DNR is standing atop a small ridge that was formed by wind erosion on the site. Slurry particles, unprotected from the wind, were deposited after hitting vegetative cover established in a 1997 planting.

This photo from the 2002 restoration area shows successful root development, which is an indicator of successful soil rehabilitation. Remnants of “Soilermaker” remain and continue to benefit the revegetation project

As a result of this successful demonstration DNR is now paying for delivery of the “Soilermaker” material to coal mine reclamation projects.

Contact: James J. King
Eli Lilly and Company
Phone: (765) 477-4266